



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
In re the Application of: YAMAMOTO, Hirotaka

Group Art Unit: 1774

Serial No.: 09/941,666

Examiner: SHEWAREGED, BETELHEM

Filed: August 30, 2001

P.T.O. Confirmation No.: 9199

For: INK JET RECORDING SHEET

DECLARATION UNDER 37 C.F.R. § 1.132

Commissioner for Patents

Washington, D.C. 20231

September\_\_\_\_, 2004

Sir:

I, Dai Hasegawa, a citizen of Japan, hereby declare and state:

1. I received a Bachelor of Laws degree in 1996 from the Department of law, Doshisha University.
2. I have been employed by Nisshinbo Industries, Inc. since April, 1996.
3. I am engaged in patenting projects in the field of synthetic paper.
4. The following table of Fine seal (products of silica) was made by me, in accordance with the data provided by Tokuyama Corporation (manufacturer of said Fine seal products, formerly named Tokuyama Soda Co., Ltd.).

DETAILS TENDING TO SHOW NON-OBVIOUSNESS

The table of Fine seal is attached to this Declaration.

The undersigned declares that all statements made herein of his/her own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed this 24 day of September, 2004

Dai Hasegawa

Dai Hasegawa

# Fine seal

Item	Unit	X				K		F	E	T	SP	P
		37	37(B)	80	70	40	41	80	70	32(S)	10	8
Specific surface	m <sup>2</sup> /gr	240-280	240-280	230-250	220-260	240-280	300-360	270-320	130-160	150-200	10-30	120-160
Particle size	μm	2.5-2.9	3.5-3.9	2.3-2.7	1.7-2.2	1.5-2	1.5-2	1.2-1.8	1.7-2.1	0.9-1.1	4.5-6	5.5-8
PH	—	6-7	6-7	5.5-7	6-7	5.5-7	5.5-7	5.5-7	6-7	6-7	9-11	5-7
Oil absorption capacity	ml/100g	260-290	260-290	260-300	260-290	260-300	260-300	250-300	260-300	270-320	100-180	240-280
SiO <sub>2</sub>	%	94 or more	94 or more	96 or more	96 or more	94 or more	94 or more	98 or more	97 or more	94 or more	—	97 or more



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Washington, D.C. 20231

September 7, 2004

Sir:

I, Hirotaka Yamamoto, a citizen of Japan, hereby declare and state :

1. I received a Bachelor of Engineering degree in 1998 from the Department of Mechanical Engineering, Faculty of Engineering, Hosei University.
2. I have been employed by Nisshinbo Industries, Inc. since April, 1998
3. I am engaged in research in the field of the synthetic paper.
4. The following experiments were conducted by me or under my direct supervision.

DETAILS TENDING TO SHOW NON-OBVIOUSNESS

The report of experiments is attached to this Declaration.

The undersigned declares that all statements made herein of his/her own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed this            day of September, 2004

Hirotaka YAMAMOTO

Hirotaka YAMAMOTO

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TEST REPORT

Dated of August 8, 2004,

By a Tester, Hirotaka YAMAMOTO

Subject: Ink Absorption Test in Examples 6 to 8, Cited in  
U.S. Patent Application S.N. 09/941,666

This is to report the test results of the above-identified subject.

1. Purpose

This test was conducted for the purpose of ensuring the difference of the ink absorption in between a case of using one kind particle of silica (Example 6) and the cases of using two different kind particles in diameter of silica (Examples 7 and 8) with respect to the above identified subject.

The test results are as follows:

2. Results

The ink absorption efficiencies were more excellent in Examples 7 and 8 than that in Example 6.

3. Detailed Test Method and Results

(1) Preparation of ink-jet recording sheet

Ink-jet recording sheets were prepared in the respective methods as described in Examples 6, 7, and 8.

(2) Test method

#### A. Printing

Printing in the type of mat green printing was carried out with an ink-jet printer (Printer Model Name: BJT 9000, made by Canon) and a pure dye ink on ink-jet recording sheets prepared as described in (1) in a high quality mode. The high quality mode means a mode in which the ink-jetting amount is the highest.

#### B. Test of ink absorption efficiency

With respect to the respective printed ink-jet recording sheets, the tests were carried out every 30 seconds immediately after the printing in the manner of lightly scratching the printed portions toward the white paper portions with an applicator, and measured how long time it took until the ink was not moved from the printed portions to white paper portions.

The details are as follows.

① The printed portions were lightly scratched toward white paper parts with an applicator. In other words, the applicator was touched to the printed portions, and without adding a strong pressure, the applicator was moved to the white paper portions with touching to the paper.

② Such scratching was carried out immediately after the printing and repeated every 30 seconds.

The scratching was repeatedly conducted in the portions not to have been scratched yet.

③ In case the ink was not completely absorbed, a portion of the ink was moved along with the movement of the

applicator and moved out the white paper portions. For the respective sheets, the above-mentioned scratching was repeated, and the time taken until no ink movement was observed, that is, until the ink was completely absorbed, was recorded.

(3) Test results

Example	Time taken for ink absorption
6	90
7	60
8	60

This report is not continued hereafter.